Suicide deaths in England and Wales: trends in factors associated with suicide deaths

John Charlton, Sue Kelly, Karen Dunnell
Health Statistics, OPCS
Barry Evans
Communicable Disease Surveillance Centre
Rachel Jenkins
Department of Health

Following a previous article which described changes that are occurring in suicide rates, this article examines trends in different factors known to be associated with suicide mortality in an attempt to gain a better insight into the reasons for the changes. In particular we hypothesise that for young men the increasing numbers remaining single or becoming divorced may explain about half of the increases observed between the early 1970s and late 1980s. This age-group of men has also been affected by high unemployment rates, exposure to armed combat, increasing risk of imprisonment, and an increase in the misuse of alcohol and other drugs. There is little evidence of a rise in the prevalence of mental illness. Further research is needed to improve our knowledge about the impact of these and other factors on suicide rates.

Introduction

A previous article in *Population Trends* described trends in suicide rates among men and women and made comparisons between regional health authorities. For men under age 45, successive birth cohorts had higher age-for-age suicide mortality. Period effects were also found, a major one being increases in rates for men aged under 45 and for women of all ages from just after the Second World War until the mid-1960s.

This article examines some factors known to be associated with suicide mortality and the effect of any changes on recent trends. It also compares suicide rates in England and Wales with those in other EC countries, and the USA. Unless otherwise stated, the term 'suicides' in this article refers to 'suicides and undetermined deaths' (see Box 1).

The likelihood of a person committing suicide depends on several factors including:

- **illness:** mental (including alcohol and other drug misuse, and effects of' behaviour-altering drugs) or physical (including painful, life threatening. or disabling illness):
  personal factors: for example level of social support. attitude to suicide:
  stressful life events: loss of job, divorce, widowhood, imprisonment, migration, diagnosis of threatening illness, traumatic shock, involvement in war:
- **changes in the wider cultural environment:** economic climate. cultural attitudes, etc; and
- **access to means of committing suicide:** for example the change from carbon monoxide to natural gas for cooking.

Population level data on the prevalence of risk factors such as unemployment, mental disorders. alcohol and other drug misuse may give clues to reasons for changes in national suicide trends. However, these data are limited in the extent to which they can 'explain' the trends in suicide rates. The probability of an individual committing suicide will depend on the combination of many risk and protective factors acting on him/her around and before the time of the event. With aggregate data the changes in different risk factors at the individual level may be masked by the level of aggregation. It is nevertheless still of value to monitor trends in risk factors at the population level, especially those which could be changed.

Some of the factors related to suicide risk have not changed significantly during the period in question. However. since they are important in explaining differences between population groups, we will cover them first before examining trends in some of the other risk factors.

Gender

Suicide is four times as common in England and Wales in men as in women. The previous paper has shown that trends for men and women are different. These differences have to be borne in mind when considering the trends. Ideally. we need to be able to explain why some factors influence men to a greater extent than women, and what factors protect women. In practice we have found it easier to account for the increases in suicide rates in young men than for the decreases in women.

Occupation, social class, and unemployment

Occupation

Using data on occupation collected at death registration for the years 1979-90 the proportional mortality ratios (PMRs) for men aged 16-64 have been calculated. The PMR gives an indication of how a particular occupation's mortality from a specific cause

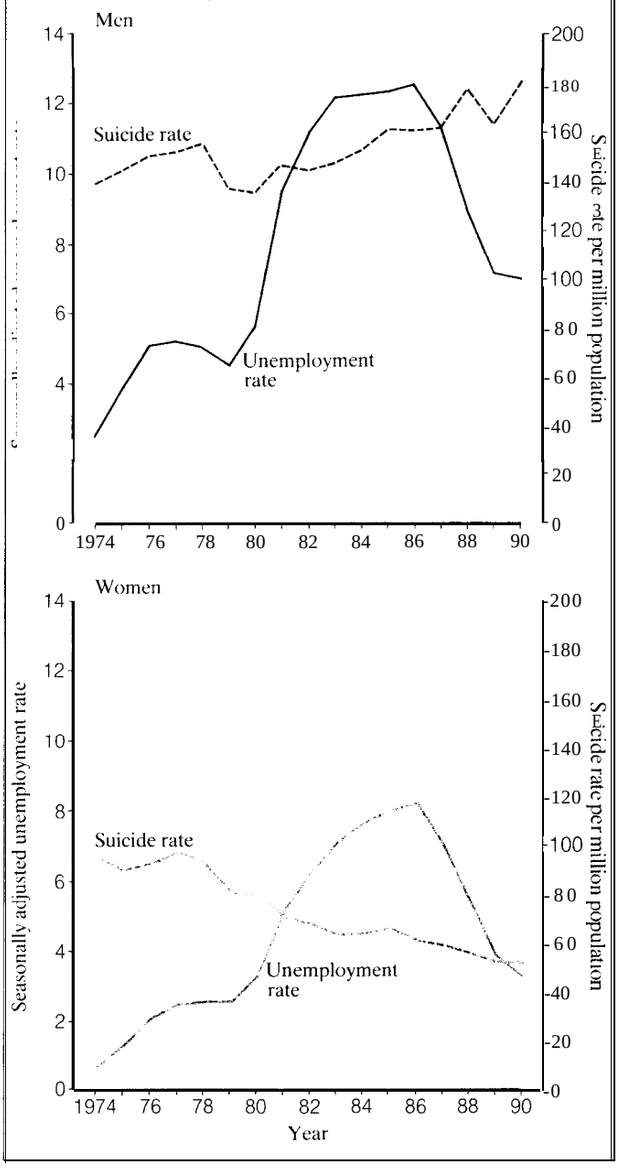
Box 1 Definition of suicide

In this and the previous article *(Population Trends 69)*, two different definitions of 'suicide' have been used:

(a) *recorded suicides*
ICD6 Codes E970-E979, ICD7 Codes E970-E979, ICD8 Codes E950-E959, ICD9 Codes E950-E959; and

(b) *suicides und undetermined deaths* (from 1968 onwards only)
Recorded suicides as (a) plus ICD Codes E980-E989, excluding E988.8 after 1978.

Fig 1 Unemployment and suicides: unemployment rates and suicide rates for men and women aged 15-64, 1974-90, England and Wales



differs from that of the whole age-group. Thus, a PMR of 200 suggests a doubling of the death rate where 100 is the value for the whole age-group being compared (see Box 2 overleaf).

Table 1. gives the PMRs and the number of deaths for the ten occupations with the highest and lowest PMRs. As can be seen, vets have the highest value, with three times the expected number of deaths. Pharmacists, dentists, farmers, and medical practitioners are next with around twice the expected mortality. The existence of these professional groups in the high mortality category suggests that easy access to drugs which can be used for suicide is an important factor. They may also be high stress occupations. Farmers may have easy access to chemicals, drugs, and firearms. There is also evidence that in recent years this group has experienced particular financial difficulties. Farmers and vets are part of a culture where very sick or distressed animals are killed. This may lead them to consider suicide more readily than other people.

Occupations with relatively low suicide rates include administrators and managers in the Civil Service, education, building and contracting. and transport. Several manual occupations arc also listed.

Social class as defined by occupation

Does the existence of relatively high mortality from suicide among small occupational groups in medical and allied professions mean that suicide is generally more common among the professional classes'? Evidence from two analyses of mortality and social class is summarised in Table 2.

The data from the Longitudinal Study (LS) arc for men aged 15-64 at entry to the study. Men were classified using their occupation at the 1971 Census when the study was set up. SMRs have been calculated using all deaths to study members from 1971 until 1985. Men in Social Classes II and III had below average SMRs. Men in Social Class I had an SMR of 110, those in Class V – 127. This analysis also gives values for those unoccupied at census and those whose occupations were inadequately described. Both these groups had higher SMRs –168 and 304 respectively.

The second analysis. by PMRs, is for all male deaths in the age-group 16-64 for the years 1979-90. The results. based on

Table 1 *Suicides by occupation, male deaths at ages 16–64 1979–90. The ten highest and lowest PMRs*

Occupation	Suicides and undetermined deaths	
	PMR	No. death\
Vet	364	35
Pharmacist	217	51
Dental practitioner	304	3x
Farmer	187	526
Medical practitioner	184	152
Therapist n.e.c.	181	10
Librarian. information officer	180	30
Typist, secretary	171	16
Social and behavioural scientist	170	11
Chemist scientist	169	70
Civil Service. Executive Officers	44	17
Drivers. motormen. etc. railways	43	24
Bus mspectorc	42	5
Managers in building and contracting	3x	34
Civil Service administrators HEO–Grade 6	37	14
Transport managers	36	31
Glass and ceramics furnacemen	34	4
Machine tool setter operator!,	29	5
Education officer\. school inspectors	15	1
Physiotherapists	0	0

Table 2 *Deaths from suicide among men in different social classes*: SMRs and PMRs*

Social class	Longitudinal Study–male'; aged 15-64 at entry – deaths 1971-85		All male deaths, ages 16-64, 1979-90	
	SMR	Observed deaths	PMR	Observed deaths
I	110	22	116	1,319
II	88	62		
IIIN	99	44	10299	5,202 3,083
IIIM	82	122	x7	9.004
IV	102	67	100	5,649
V	127	35	III	3,582
Armed forces			76	311
Inadequately described	304	17	149	504
Unoccupied	168	37	126	3.885

* Social class as defined by occupation: I Professional, II Intermediate (lower professional and executive). 111 -Skilled (manual and non-manual), IV Partly skilled, V Unskilled. The data from the LS include accidental poisoning.

a much larger sample of deaths. show a similar pattern to the LS data. The only difference is that Social Class I has a higher PMR than Social Class V. This is probably due to the different methods used to calculate SMRs and PMRs. The higher Social Class I PMR indicates that a greater proportion of all cause mortality in Social Class I, than in Social Class V. is due to suicide.

Traditionally occupational mortality analysis has mainly been carried out using information from men's death certificates. There are two main reasons for this. First. women tend to have less exposure to a particular occupation because they move in and out of occupations during the family life cycle. Second. occupation is recorded for women on death certificates only if they were in paid employment for most of their working life. Thus analyses for individual occupations comparable with Table 2 are not routinely available.

Unemployment

Fox and Shewry[2] reviewed findings from the OPCS Longitudinal Study looking at mortality in the years following the 1971 and 1981 Censuses. Mortality among those unemployed and seeking work was higher after both censuses. They conclude,

> *'In both periods some of the observed excess mortality can be explained in terms of socio-economic factors, but not all. There is also similarity in the pattern of SMRs by cause of death: deaths after the 1981 Census point to suicides, other accidents, lung cancer and ischaemic heart disease as causes with the highest and most significant SMRs.'*

In particular, those men unemployed and seeking work at census were at 2-3 fold greater risk of suicide death than the average. Moser *et al*[3] conclude that 'excesses in mortality were apparent both for men aged IS-64 who were seeking work in 1971 and for the wives of such men.' Although the numbers of suicides reported in the study were small, the SMR suggests that the risk of suicide was about double that expected. Analysis of deaths occurring in the 1980s suggests that the same pattern existed for those seeking work at the time of the 1981 Census.' However the numbers were small, and these deaths would account for only a small proportion of' all suicides.

Most unemployment is short term (under six months), and unemployment totals are net figures at a fixed point in time, so unemployment rates never give a complete picture of distress caused by unemployment. The impact of unemployment may depend on the chance of becoming re-employed. Unskilled people, and those in manual occupations. are more likely to be made redundant and less likely to find alternative work than those with skills or in non-manual occupations. The effect of unemployment may be less in times of mass unemployment than in times of low unemployment.'

Having established that suicide is one of the possible consequences of unemployment we need to ask whether changes in the levels of unemployment can be related to changes in suicide rates. Charlton *et al*,[6] examined aggregate data for counties in England and Wales which described the different geographic trends in unemployment and suicides. They were unable to show any association between change in unemployment and change in suicide rates. Crombie performed a similar analysis on Scottish data, and again found no relationship.[7,8]

Nationally unemployment increased substantially at the end of the 1970s, stayed high until the mid- 1980s, and then started to decline until the late 1980s. rising again in the early 1990s. Figure 1 shows trends in seasonally adjusted unemployment, alongside the suicide trends. Unemployment figures have been calculated on a consistent basis throughout the period. Thus in the 198 I-90 period. male suicide rates were highest at the time when unemployment rates were lowest. If there is any relationship it is likely to be a lagged one, and the mechanism would be complicated.

Marital breakdown

It has been found that higher rates of emotional problems in adulthood are experienced by those whose childhoods were characterised by poverty, insecure housing, and separated and divorced parents." These social problems are of course correlated with one another and it is difficult to separate out the effects of each. Nevertheless it is worth speculating whether increasing rates of marital breakdown during the 1960s and 1970s may be responsible for some of the increase in suicide rates observed among young men during the 1980s. If this were the case we would need to explain why it affected young men and not young women. Such explanations are difficult with the information available for analysis here. We need to wait for longer term results from cohort and linkage studies.

Another question is the extent to which the increase in divorce has affected the rate of suicide among men aged 15-44. Figure 2 shows the trends in suicide rates for men in different marital status groups. Divorced and widowed men have the highest rates. Widowed men have somewhat higher suicide rates than divorced men in each age-group. They have been grouped together here for simplicity. Also, nearly all the divorced and widowed men aged 15-44 are divorced. At given ages *single men have suicide rates that are utmost us high us those for divorced men.* In general in each ten-year age-group, apart from the I S-24 year olds, single, widowed, and divorced men have suicide rates which are about three times greater than those of married men. This could suggest a protective effect of marriage for men. Alternatively, it may be because men who may be prone to suicide are more likely to remain single or become divorced at a given age than other men.

Box 2 Proportional mortality ratios (PMRs)

The PMR enables the impact of a disease upon an exposed population to be examined. In this paper we are interested in PMRs for suicide amongst men aged 16-64 in different occupations and social classes. The PMR is calculated as follows:

$$\text{PMR} = \frac{\text{Observed deaths from suicide}}{\text{Expected deaths from suicide}} \times 100.$$

The expected deaths are computed by applying the proportion of total deaths due to suicide in the comparison or general population (in this case. all men aged 16-64) to the total deaths in the occupation group or social class of interest.

Thus a PMR of 200 indicates that the proportion of deaths attributable to suicide was twice as great among the specific occupation group as among a comparable England and Wales population, that is all men aged 16-64.

Care should be taken when interpreting PMRs since the relative frequency of other causes of death can affect the proportional mortality for the cause of interest. As a result, an observed excess for one cause of death in the exposed group may represent a true increased risk, but may also simply represent a deficit of deaths from other causes.

Fig 2 Suicides: rate per million population by sex and marital status for people aged 15-44, 1972-89. England and Wales

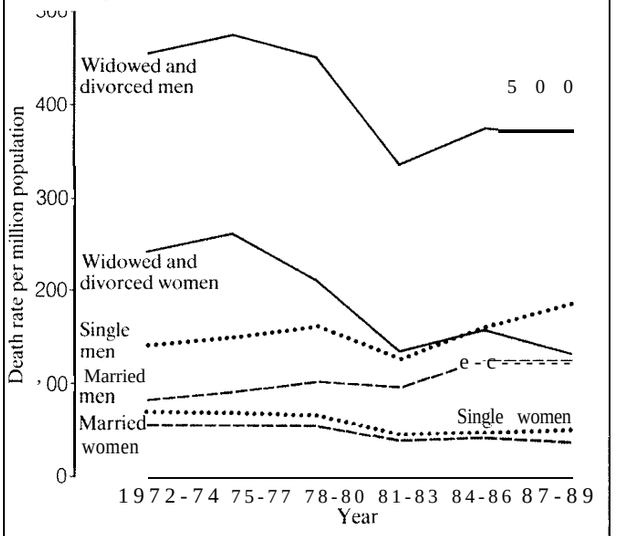
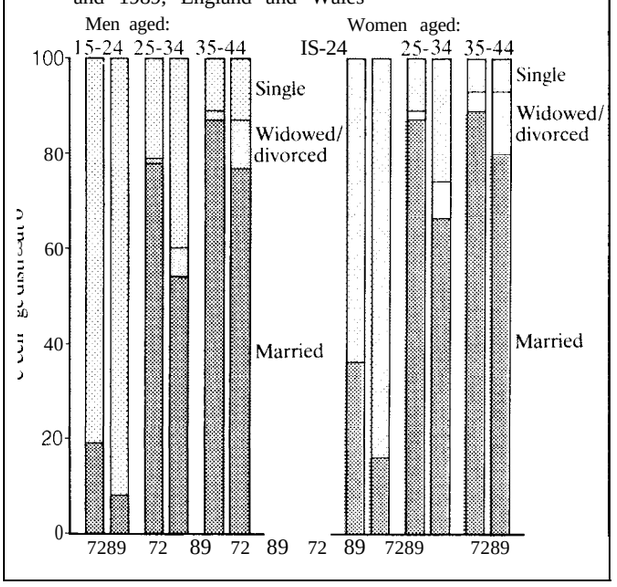


Fig 3 Marital status of men and women aged 15-44 in 1972 and 1989, England and Wales



Between 1972-74 and 1987-89 suicide rates among married men aged under 45 increased. Those for all age-groups of divorced men decreased whilst rates for single men, except those aged 15-24, generally stayed the same. However, the marital status distribution of the population changed quite dramatically during the period of interest. Among men aged 15-44 the proportion of single and divorced increased in each of the IO year age-groups. Figure 3 shows the changes between 1972 and 1989 for both men and women.

To what extent are the changes in marriage and divorce patterns related to the increase in suicide'? In 1972-74 the suicide rate for men aged 15-44 was 115 per million. By 1987-89 it had risen to 186 per million. Using the marital status distribution and suicide rates in ten-year age-groups we have calculated the suicide rate in 1987-89 assuming that there had been no changes in the proportions of men in different marital status groups. It would have been 149 per million. Thus we suggest that one half of the increase in rates in young men may be due to the smaller proportions who are married. These calculations take no account of the increases in cohabiting among single men during the period. Death statistics do not record cohabitation as a marital status.

Figure 2 also shows the trends in suicides among women in different marital status groups. All of them show decreases over the last 20 years. The declining pattern of change for widowed and divorced women aged 15-44 is very similar to that of men. It is possible that as divorce becomes more common and there are many more divorced people in the community less stress is associated with this marital status. It is unclear, however, why suicide rates for single and married women are falling whilst those for single and married men have been increasing.

Alcohol, drug misuse, and mental illness

Alcohol and drugs

The relationship between alcohol and other drug misuse and suicide is well established. First, the same risk factors may be involved in their aetiology. Second, it is known that a high proportion of people who committed suicide were alcoholics. Adelstein and White,"' in a cohort study of over 2,000 hospital patients with a diagnosis of alcoholism, found significantly raised suicide levels in both men (SMR = 320) and women (SMR = 230). Miles" and Hawton[12] have suggested that IS per cent of alcoholics may eventually commit suicide. Kessel and Grossman" have shown that male alcoholics are at greater risk than female alcoholics. Alcohol may also be used frequently both immediately before and during suicide attempts. This may make successful suicide more likely.[14]

The risk of suicide among drug addicts is also known to be very high. James" suggested that the risk of suicide among heroin addicts is approximately 20 times that of the general population.

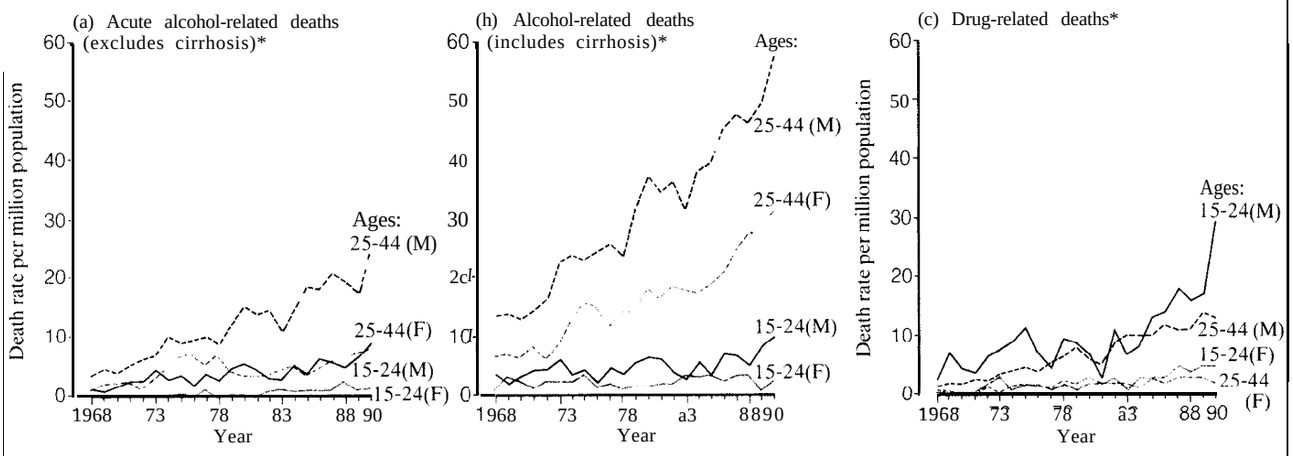
Data are available for deaths from drug misuse and alcohol-related causes. Figure 4a shows trends in acute alcohol-related deaths (excluding cirrhosis of the liver). Figure 4b includes deaths from cirrhosis, which takes longer to kill. For the acute causes, men aged 25-44 showed the largest increase in rates (more than four fold), followed by men aged 15-24. Rates for younger women also rose, but the levels remained substantially lower than those for men of the same age. When cirrhosis deaths are included the differences between men and women widen, but there was a growth in cirrhosis deaths among women aged 25-44 that led to their rates steadily increasing over the period. In the 45-64 age-group the death rates more than doubled for both sexes. If these rises reflect increases in alcohol misuse nationally, this would explain to some extent the increase in male suicide rates.

Since 1968 there has been a six-fold increase in drug-related deaths among males aged 15-24 and a five-fold increase for males aged 25-44. For women there were also substantial increases, but from a much lower base – differences between male and female rates have widened substantially (Figure 4c). If these rises reflect increases in drug misuse rather than an increased tendency to report cause of death more accurately. this, too. would explain to some extent the increase in male suicide rates. Among young people, especially those under age 20 and male, volatile substance abuse (for example glue and lighter fuel sniffing) has increased greatly since 1971.[16] Deaths from these causes will be the subject of a future article in *Population Trends.*

Mental illness

The two most common forms of mental illness thought to be related to suicide are schizophrenia and depression. Hawton estimates that between IO and 15 per cent of people with schizophrenia and 15 per cent of people with affective psychosis commit suicide.[14] Miles found similar rates."

Fig 4 Deaths from alcohol-related causes and drug misuse: rate per million population by sex and age, 1968-90, England and Wales



We have shown that the prevalence of alcoholism has probably increased, but what about other forms of mental illness? Murray suggests that the incidence of schizophrenia has not increased and may well have fallen.[17] While we have information on changes in inpatient admissions and discharges, these are influenced by hospital-related factors, and are very limited in their usefulness as a monitor of trends in mental illness generally. More useful are local surveys of mental illness in the general population which, until now, do not indicate any significant increase in the prevalence of mental illness. However, there has been an increase in the number of mentally ill people being cared for in the community rather than in hospital, and without careful attention to the assessment and management of suicidal risk this may increase vulnerability, exposure to risk factors, and access to means of suicide.

Prisons

Table 3 shows the changes that have occurred in the prison population and the number of prison receptions since 1981. The number of prison suicides (as recorded by Coroners) per year has also risen considerably, from around 15 per year in 1961 to around 40 per year in 1988-90. Forty suicides a year in the late 1980s represents about 2 per cent of all suicides in the 15-44 age-group of men. Having increased from only about 15 in the early 1970s, the extra 2.5 per year represents about 4 per cent of the increase in the young male suicide rate between the early 1970s and late 1980s. Most of these suicides involve young (under 45) male remand prisoners. This is illustrated by Figure 5 which contains data provided by the Home Office. Lloyd has reviewed the aetiology of prison suicide." The most striking finding is the high rate among the remand population. Remand prisoners who commit suicide are more likely to have been charged with violent crimes. Sentenced prisoners are more likely to commit suicide later on, the reasons for this are complex and not clear cut. Dooley[19] examined 300 prison deaths over the period 1972-87. Case notes were available for 295 of these. During this period the prison suicide rate per 1,000 receptions increased by 80 per cent. Part of the explanation may be due to the fact that the proportion of remand prisoners increased. Another explanation may be overcrowding, leading to less supervision and support. Prisons also contain an excess of men with known risk factors for suicide, such as previous psychiatric history, self injury, alcohol/drug misuse. social isolation, and marital disruption. Dooley showed these factors to be predictive of suicide as well."' He ascribes 40 per cent of prison suicides to the prison environment, 15 per cent to outside pressures, 12 per cent to guilt feelings for the offence, and 22 per cent to already diagnosed severe mental disorders.

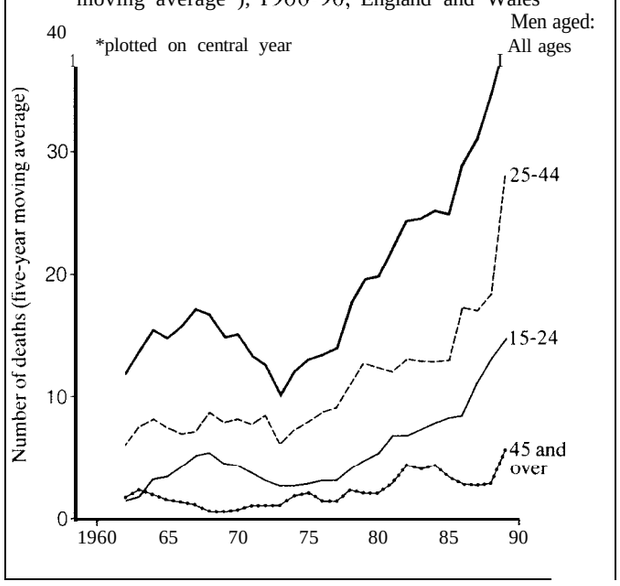
Table 3 *Receptions into prison establishments and population in custody, England, Wales and Northern Ireland*

thousands

	1981	1986	1988	1989	1990
Average population					
Males	44.5	47. I	49.0	48.5	45.2
Females	I.5	1.6	1.8	1.8	1.6
Remand prisoners	1.4	10.3	10.8	IO.7	9.x
Receptions	49.6	57.7	59.8	60.6	54.4

Source Social Trends no ***22***

Fig 5 Prison suicides: number of male deaths (five-year moving average*), 1960-90, England and Wales



Access and method

The probability of committing suicide will depend to some extent on the ease of access to effective means. The method

used will depend on availability. ease of use. and 'fashion'. For example. as carbon monoxide domestic gas was replaced by non-toxic natural gas over the period up to the mid-1970s, the overall suicide rate also declined, most of this fall being due to reductions in suicides by domestic gas. Since 1948, poisoning by other (mostly motor vehicle exhaust) gas has emerged as a popular self-poisoning method, becoming the most popular method for men by 1990. accounting for nearly a third of all male suicide deaths.' During this period the number of registered cars has increased considerably.

Another example of how access to methods relates to their use is shown in Figure 6, which shows GP prescriptions for sedatives and tranquilisers: and for sedatives, tranquilisers, and hypnotics (data provided by the Office Health Economics). These are Prescription Pricing Authority grouping of drugs, which include psychotropic drugs such as fluphenazine hydrochloride, lorazepam, phenobarbitone, prochlorperazine, and promazine hydrochloride. Since 1966, prescriptions for drugs in the barbiturate group have been falling steadily, from 189 million in 1966 to 0.2 million in 1990. GP prescribing of these groups of drugs rose up to 1975 and then fell. The graph also shows trends in age-standardised rates for suicides by self-poisoning (suicide and undetermined deaths. ages 15 and over). Suicide mortality from this cause fell steadily for males and females from 196X-70 until 1983-85 (somewhat predating the decline in GP prescribing), since when female mortality has continued to fall but male mortality has not changed.

Fig 6 Self-poisoning death rates by sex and number of GP prescriptions for sedatives, tranquilisers, and hypnotics, 1969-90, England and Wales

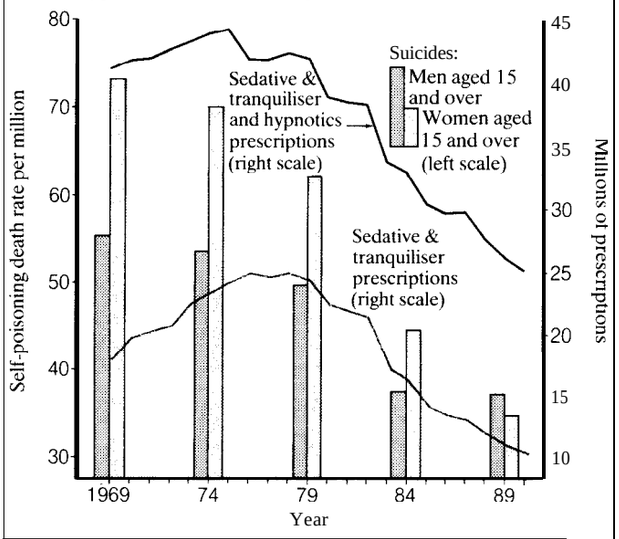


Fig 7 Suicide by poisoning: number of deaths in 1979-81 and 1989-91 among men aged 15-44, England and Wales

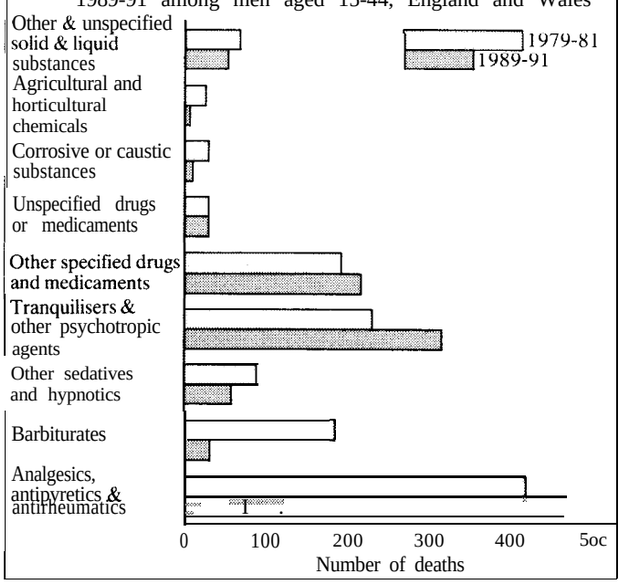


Figure 7 gives a breakdown of the number of deaths from self-poisoning among men aged 15-44. It can be seen that analgesics are the largest group of substances. followed by tranquilisers and other psychotropic agents. The numbers of deaths by these drugs has increased considerably over the decade, while deaths from barbiturates and other sedatives and hypnotics have declined. It is not always appreciated that a relatively small overdose of paracetamol will cause fatal liver damage, and public health measures should be focused on limiting these deaths.

Other factors

We also looked at various other factors which might be associated with suicide mortality, but none of these greatly affected overall suicide rates.

HIV/AIDS

AIDS was first described in 1981, and testing blood for antibody to human immunodeficiency virus did not come into widespread use until late 1984.

The all cause mortality rate for men aged 15-44 began to rise in 1985. A detailed examination of this excess mortality"' showed that the causes were concentrated in suicides, open verdicts, and AIDS. McCormick has shown that maybe only 30 per cent of AIDS deaths are recorded in mortality statistics as AIDS/ HIV deaths." AIDS may therefore be implicated in a proportion of the excess suicides and open verdicts recorded since lYX4.

However, when age-specific rates were examined by regional health authority the increases in suicides since 1984 did not correlate with the areas most affected by the HIV epidemic. NW Thames and NE Thames regions have the largest numbers of AIDS case reports and reports of HIV infected individuals. These regions showed the smallest increases in suicide rates in males aged 15-44. This may be another example where the

Fig 8 Military injury deaths: rate per thousand strength (all armed forces) by sex, 1979-9()

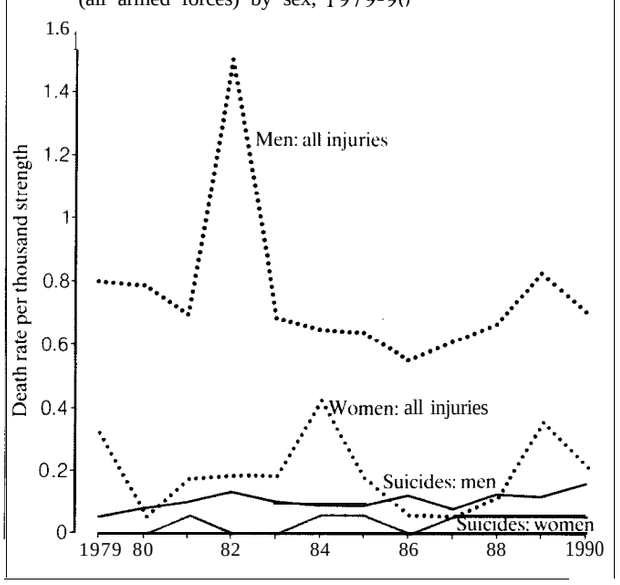
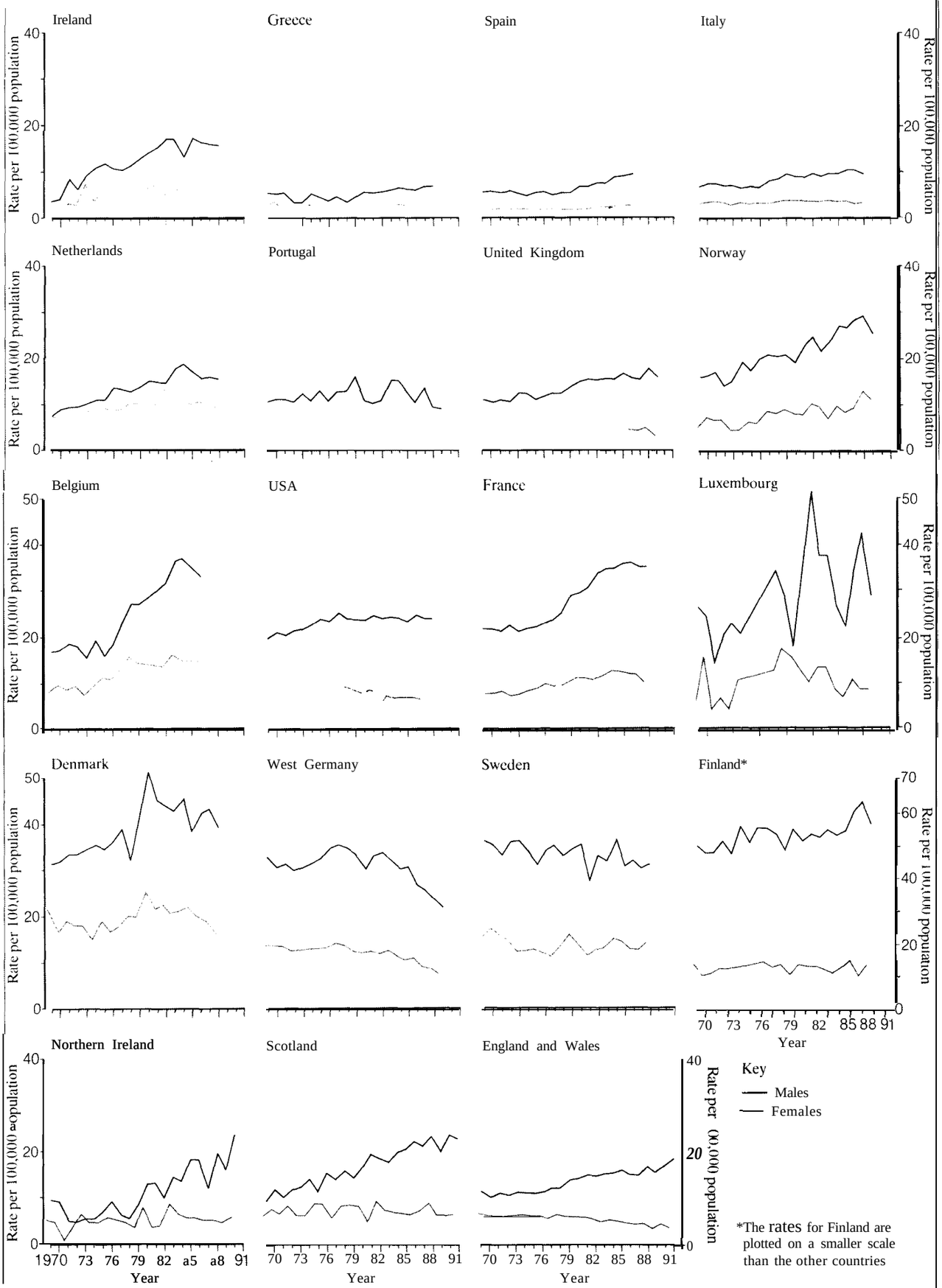


Fig 9 International comparisons of recorded suicide rates for men and women aged 25-44, 1969-91



existence of other people in a similar situation provides social support or a lessening of stigma which may lead to a lower risk of suicides.

Effects of war

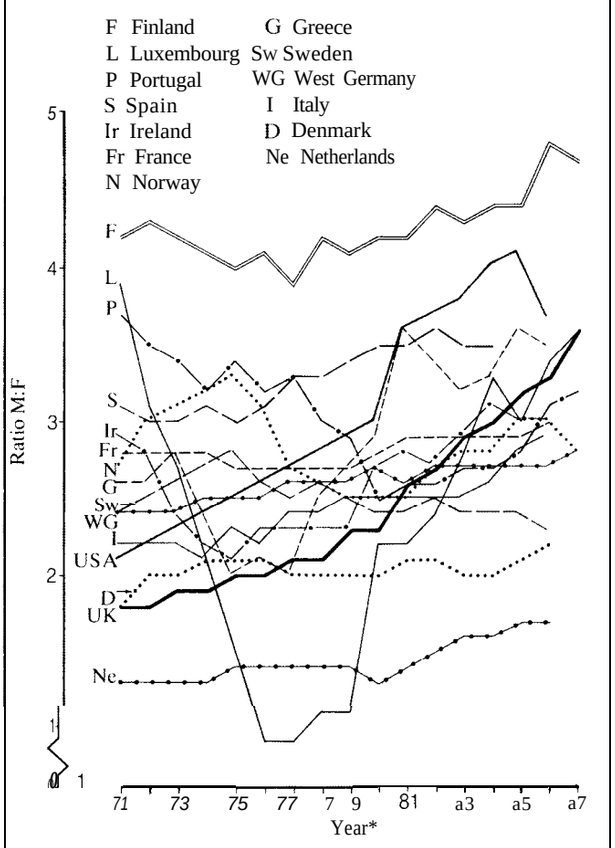
Health statistics from the Ministry of Defence[22] have been used to calculate suicide rates for serving members of the armed forces. since it has been suggested that the effects of war may increase the risk of suicide. These are shown in Figure 8 (see page 39). where the same patterns arc observed as in the general population. Rates for men have doubled from 70 per million in 1979-81 to 140 per million in 19X8-90. However. those suffering post traumatic psychological stress may leave the forces before committing suicide. and be excluded from the MoD figures. Data from follow-up of ex-armed forces personnel arc difficult to obtain.

International comparisons

Figure 9 compares the EC countries. Scandinavia. and the United States in terms of recorded suicide rates among men and women aged 25-44.

Cross-cultural comparisons of suicide rates should only be made with extreme caution, since different meanings and attitudes will be associated with suicide in different cultures. These graphs only show recorded suicides, taken from WHO Annuals." Some societies may be more likely to cover up suicides. for example by classifying them as 'accidental' or 'undetermined whether accidentally or purposely inflicted'. while others may be more open to accepting a suicide verdict. Hence official statistics of different countries will reflect varying degrees of the true rate. However. the trends within country arc more likely to reflect changes that are occurring.

Fig 10 International comparisons of recorded suicide ratio male: female, ages 25-44, 1969-89



*Five-year moving averages plotted on central year

The trends for males aged 25-44 are by no means similar in the different Western countries. For example, West Germany has experienced a substantial decline. the USA rates have been level since 1978, and the rates in France have risen even more steeply than those in the UK.

The trends for females have in general followed those for the males. except in the UK and USA. where they have fallen by around 30 per cent. Within the UK female rates in Northern Ireland have risen (by 47 per cent), perhaps to some extent reflecting the 253 per cent rise in female suicide in Ireland between 1969-71 and 19X6-88. Figure IO illustrates how the male to female suicide ratio has risen in the UK and USA. compared with the other Western countries.

Only in the UK and the United States do we observe trends for the different sexes that are moving in opposite directions. Within the UK, Scotland and Northern Ireland have higher suicide rates than England and Wales.

Table 4 compares the levels of recorded suicide in the different countries. Generally southern countries have lower rates than northern ones. but there are exceptions. It can be seen that the rates in the UK are by no means the highest or lowest. The use of the undetermined category may vary from country to country according to coroners' conventions. however, which could alter the recorded suicide rates.

It is interesting to note how the ratio of male to female rates varies from country to country. Finland has exceptionally high male rates: but women's rates. at one sixth of the men's, are close to the average. The Netherlands has the most equal male and female rates.

Conclusions

Changes in suicide rates are related to a complex set of social, economic. and other changes. As other commentators have found. it is extremely difficult to pinpoint clear relationships. This is partly because some of the changes are difficult to measure, partly because the changes are related to one another and partly because there are probably relevant factors as yet unidentified. Nevertheless, we have looked systematically at some of the factors thought to be related in an attempt to see to what extent they may explain the changes in suicide patterns.

The main puzzle is why rates of suicide are increasing among young men but not among women. Further work is needed to explore this.

For men, particularly young men, we suggest that the increasing numbers of men remaining single or becoming divorced may explain up to one half of the increase in suicides observed between the early 1970s and late 1980s. This age-group of men have also been affected by high unemployment rates. exposure to armed combat, increasing risk of imprisonment, an increase in misuse of alcohol and other drugs, and the HIV virus. There is little evidence of a rise in the prevalence of mental illness.

In July 1992, the Government produced *The Health of the Nation* White Paper.?' a strategy for health in England, which focuses on five 'key areas', of which mental illness is one. Two of the three targets in the mental illness key area are related to suicide, one being to reduce overall deaths from suicide by the year 2000, and the second being to reduce deaths from suicide in people with a severe mental illness by the year 2000. The findings in the paper give some pointers to possible preventive strategies.

Table 4 *Reported suicide rates per 100,000 population in Western Europe and USA, ages 25–44*

Country	Sex and M:F ratio	Averages 1969–71	Averages 1986–88	Percentage change
Denmark	M & s	32	41	30
	Female\	IX	IX	0
	M:F ratio	2	2	29
France	Males	21	36	67
	Females	8	11	48
	M:F ratio	3	3	13
Greece	Males	5	6	21
	Females	2	2	–29
	M:F ratio	3	4	51
Ireland	Males	5	16	192
	Females	2	5	253
	M:F ratio	4	3	–18
Italy	Males	7	10	35
	Females	3	3	– 3
	M:F ratio	2	3	39
Luxembourg	Males	21	33	56
	Females	8	Y	II
	M:F ratio	4	4	4
Netherlands	Males	8	15	X3
	Females	6	Y	45
	M:F ratio	1	2	26
Portugal	Males	II	II	4
	Females	3	3	38
	M:F ratio	4	3	-21
Spain*	Males	5	Y	6.3
	Females	2	2	44
	M:F ratio	3	4	12
West Germany	Males	31	25	–19
	Females	13	9	–30
	M:F ratio	2	3	15
United Kingdom	Males	II	15	so
	Females	6	4	–24
	M:F ratio	2		95
England and Wales	Males	II	15	43
	Females	6	4	–28
	M:F ratio	2	3	100
Scotland	Males	10	22	112
	Females	6	7	13
	M:F ratio	2	3	91
Northern Ireland	Males	8	17	I IS
	Females	3	5	47
	M:F ratio	4	3	–18
USA	Males	20	24	18
	Female\	10	6	–36
	M:F ratio	2	4	85
Finland	Males	49	59	20
	Females	12	13	9
	M:F ratio	4	5	II
Norway	Male\	16	2X	73
	Females	6	10	63
	M:F ratio	3	3	5
Sweden	Males	35	31	–12
	Females	16	13	–16
	M:F ratio	2	2	5

* 1986–88 figures for Spain not available, 1984–86 used instead.

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